

# Burns Contracture Of Neck: Two Case Reports Of Difficult Intubation

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## Abstract

Two children were admitted in the department of surgery with burn contractures involving the face, neck and arms. Both had release of contractures under general anaesthesia. These two children had flexion deformity of neck making direct laryngoscopy and surgical access to airway extremely difficult. Their anaesthetic management are discussed.

## CASE REPORT 1

A 13 year old boy, weighing 25 kgs presented with history of burns (burst of kerosene stove) leading to contractures of face, neck and upper extremity. The burns were 6 months old. Primary management was done in a district hospital and the patient was later referred to us. There was no history of difficulty in breathing or swallowing.

On examination, his vital signs were stable. The contractures involved the eyelids, face, neck, chest and upper arms. Lagophthalmos was present bilaterally. Mouth opening was less than 1 cm. There was a fixed flexion deformity of the neck (chin approximated to sternum). The anterior aspect of the neck was not visible. The angles of the mouth were severely cicatrized (figures 1a, 1b).

## Figure 1



## Figure 2



He was scheduled for release of contractures of neck under general anesthesia using ketamine, as direct laryngoscopy and surgical access to airway seemed impossible. On the day of surgery, glycopyrrolate 0.15mg was given intramuscularly 45 minutes before induction. Just before skin incision, ketamine 40 mg was given intravenously (slowly) and the same dose was repeated 15 minutes later. Supplemental oxygen was given through nasal cannulas. Throughout the procedure he maintained spontaneous respiration and the oxygen saturation was around 97%. (figure 1c).

**Figure 3**



**CASE REPORT 2**

A 3-year-old girl weighing 11 kgs presented with a history of burns leading to contractures. The burns were 3 months old. On examination, her vital signs were stable. The mouth opening was less than 1cm. The angles of the mouth were severely cicatrized. Contractures involved the forehead, cheek, neck (predominantly the lateral aspects) and the chest .She had fixed flexion deformity. (figures 2a, 2b)

**Figure 4**



On the day of surgery, she was given premedication with glycopyrrolate. As direct laryngoscopy and surgical access to the airway seemed difficult, general anesthesia was induced with ketamine. Intraoperatively, a 3.5mm endotracheal tube was cut to a desired length and used as a nasopharyngeal airway (after applying vasoconstrictor oxymetazoline). Spontaneous respiration was maintained throughout the procedure. Nitrous oxide and oxygen were given through the airway. Oxygen saturation was maintained

around 98%

**DISCUSSION**

Contractures following burns is a known complication. Inducing anesthesia should be planned in advance. The usual technique of intravenous induction and muscle relaxants would have been disastrous in these two cases. However, there are few options in securing the airway provided the department is well equipped.

1. Laryngeal mask airway (1)
2. Fiberoptic laryngoscopy (2,3)
3. Blind nasal intubation
4. Local anesthesia-tumescant anesthesia (4)
5. Ketamine (5)

In places where facilities are scarce (as in our case) the first two options are out of the way. The problem with tumescant anesthesia is that the dose of local anaesthetic agents used to achieve the clinical effect might easily exceed the maximum safe dose.

Blind nasal intubation is a reasonably good option. Doing the procedure in awake state was a problem as these two children were uncooperative. Because of scars, giving regional airway blocks would also have been difficult. Fixed flexion deformity prevents the neck manipulation. Inhalation anesthesia was not tried as there was no backup for other means of ventilating the patients (in case of airway obstruction, laryngospasm, epistaxis)

The final option left was ketamine. The advantages are that it maintains spontaneous respiration and provides excellent analgesia

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